uncertainty strikes with particular force when leasing largely immobile, long-lived network assets with fixed costs.

Finally, Dr. Avera demonstrated how the component costs of Dr. Collins' proposed cost of capital are inaccurate and contrary to SWBT's actual experience in the industry.

5. **Elizabeth A. Ham**

In her direct testimony in PUD 97-213, SWBT witness Elizabeth A. Ham testified that she is Executive Director-Interconnection and Resale Technical Implementation for SWBT. In her testimony, she described how SWBT complies with the Telecommunications Act of 1996 and the requirements established by this Commission and the FCC for providing competitive local exchange carriers ("CLECs") with non-discriminatory access to its Operations Support System ("OSS") functions. She also discussed the OSS functions that SWBT makes available to CLECs for pre-ordering, ordering, provisioning, maintenance and repair, and billing.

SWBT has made a number of electronic interfaces available to CLECs. These interfaces enable CLECs to provide services to their end user customers that are comparable to the service levels provided by SWBT to its own end user customers. SWBT has performed all the functions necessary in order to make electronic interfaces "operationally ready" for CLECs, and they have been ready to use since January 1, 1997.

SWBT has fulfilled its obligation to provide non-discriminatory OSS access to all CLECs. Across all functions, SWBT provides CLECs with a variety of proprietary interfaces and/or with application-to-application interfaces based upon industry standards (where available) that allow the CLECs to build their own customer user software.

The two rate elements for a CLEC to access SWBT's OSS interfaces are the following monthly charges:

- Remote Access Facility ("RAF") rate element--The RAF has been created to provide CLECs with a point-of-entry for gaining access to its OSS functions. This rate element is based upon costs for equipment, facilities, operations personnel, and the security firewall required to ensure CLEC access to the interfaces. It is a monthly charge per port, for either "Dial Up" or a "Direct Connection." CLECs are required to provide their own facility (private line or dial up) for access to the RAF.

- System Access rate element--The System Access rate element consists of application and security support, as well as full-time (24 hours a day/7 days a week) Help Desk coverage to assist CLECs with electronic interface issues that arise. This monthly charge applies on a per state basis.

The following functions are supported by multiple interfaces which are available to the CLECs:

- Pre-ordering involves the exchange of information between SWBT and a CLEC about a current or potential customer during negotiations for service. For example, pre-ordering capabilities include, address verification, customer service records and telephone number assignment. In the absence of national guidelines, SWBT provides CLECs with a choice of interfaces for access to its OSS pre-ordering capabilities. These choices include EASE, Datagate, and Verigate.

- Ordering involves the actual transmittal of the service request from the CLEC to SWBT. Provisioning involves the exchange of information where the CLEC can obtain order confirmation data, service order status, and service order completion information. SWBT provides CLECs of all sizes with a choice of company-appropriate interfaces for access to its OSS ordering and provisioning capabilities. SWBT will continue to work with CLECs on development of interfaces that operate using industry guidelines. While national guidelines have yet to be fully developed for ordering and provisioning, SWBT has been proactive in incorporating the completed Ordering and Billing Forum/ Telecommunications Interface Forum ("OBF/TIF") national guidelines into its electronic interface. These interfaces include EASE, LEX and EDI.

- Maintenance and repair involves the exchange of information which gives CLECs the capability to request repair of resold services and unbundled network elements and to check on the status of these repairs. CLECs have several options available to them for reporting trouble and for requesting maintenance and/or repairs, included are Toolbar/Trouble Administration and electronic Bonding.

- Billing involves the exchange of information necessary for CLECs to bill their customers, to process the end user's claims and adjustments, and to view SWBT's bill for services provided to the CLEC. These CLECs are provided with a choice of options for obtaining electronic access to billing information, such as Bill Plus, EDI, EMR and Toolbar/Bill Information.

SWBT receives and processes service requests for resold services of large business customers and certain complex serving arrangements. However, electronic means to perform these functions are not available. These situations require extensive manual coordination on the part of SWBT service representatives, even when handling service requests for SWBT's own customers. Where these large business customers or complex service arrangements are involved, CLECs will need to contact the local service center to process their service requests.

In her rebuttal testimony in PUD 97-213 and 97-442, Ms. Ham presented SWBT's position regarding Operational Support System (OSS) issues that were raised by AT&T. She explained the OSS operational issues and the current processes which will best support provisioning for UNEs.

AT&T's Mr. Segura led one to believe that the provisioning process for UNEs is as easy as "Plain Old Telephone Service" (POTS). He implied that by not using POTS (as he refers to it), SWBT is not using up-to-date, efficient OSS for CLEC orders and provisioning. This is incorrect. Ms. Ham explained in detail the OSS systems available for these functions. In doing so, she demonstrated how POTS-associated OSS simply is not capable or suitable to perform UNE ordering and provisioning.

AT&T sought to exclude from OCC cost studies almost all manual processing for CLEC orders and provisioning of UNEs. On the theory that the error or fall-out rate from the mechanized systems is only about 2%, AT&T proposed that a 98% "flow-through" rate be used. Costs of OSS should thus presume that 98% of orders are mechanized, according to AT&T.

Ms. Ham demonstrated how AT&T is incorrect. For each order that falls out, manual intervention by SWBT is required to correct the error or perform the edit. The cost for this manual process is higher. Under SWBT's internal EASE[2] system, CLEC service representatives ordering resold services experience a fall-out rate of up to 50%. As this experience demonstrates, SWBT's fall-out rate for processing retail residential service using EASE (about 1%) cannot be automatically applied to CLEC service representatives. That low rate certainly cannot be applied to the vastly different systems needed for ordering and provisioning UNEs (the EDI and LEX systems described below).

Currently, all UNE orders received from the CLECs (whether by EDI, LEX, facsimile or mail) are manually input by SWBT service representatives. SWBT expects that its editing processes will improve, but those improvements will not completely eliminate the processing time required by SWBT representatives.

Some UNE and complex resold services will not and may never be available for mechanized EDI or LEX input due to the complexity and customization required. This would be no different than what SWBT currently experiences with its own complex retail services. With time and experience, SWBT expects that CLEC representatives will improve ordering results, but that they will not achieve in the foreseeable future the 98% flow-through rate hypothesized by AT&T.

AT&T suggests changes to SWBT's OSS system to accommodate the special billing requests of AT&T. Furthermore, AT&T would have SWBT incur additional costs to modify OSS in order to perform for AT&T what SWBT does not perform for its own customers or for IXCs. These suggestions are contrary to the provisions of the Interconnection Agreement between AT&T and SWBT, as well as the related findings by this Commission.

Ms. Ham explained in detail each of the electronic interfaces that have been made available to CLECs for pre-order, ordering, provisioning, maintenance and repair, and billing, all in compliance with the AT&T arbitration decision. She detailed the function of each OSS interface.

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[2] EASE is an on-line system that was developed as a service order negotiation tool for SWBT's own retail service representatives, and is currently used by SWBT for both residence and business customers.

Ms. Ham also described in detail the EDI and LEX systems. SWBT's EDI gateway provides an electronic interface which conforms to national guidelines. It is now available to CLECs for testing with SWBT the ordering and provisioning of both resold services and unbundled network elements. This capability enables each CLEC to submit electronically its local service requests to SWBT, and to receive acknowledgments, confirmations and completion status utilizing its own interface. LEX is a graphical user interface developed by SWBT for operation on Windows and is based on national guidelines. It will allow CLECs electronically to create and transmit local service requests to SWBT, to receive acknowledgments and notification of error details from SWBT, and to track firm order confirmations and service order completion status. LEX is an option for CLECs that wish to utilize national guidelines ordering formats but do not have or wish to establish EDI capability.

Summary of Cross-Examination of Elizabeth A. Ham

Ms. Ham of SWBT testified concerning the access to SWBT's Operational Support Systems ("OSS") that will be provided to requesting CLECs. Ms. Ham agreed that SWBT has an obligation to provide non-discriminatory access to the functions that are provided over its operational support systems to any requesting the CLEC. For residential service, SWBT utilizes a system known as Consumer EASE to provision service through its operational support systems. To provision resold services, a requesting CLEC will be provided with access to SWBT Consumer EASE system. Providing CLEC's with access to SWBT's EASE system permits the CLEC to obtain and input information to provision service orders in the same manner that SWBT obtains information and inputs information to provision a service order through SWBT's OSS system. A representative within Southwestern Bell who is trained and experienced using the Consumer EASE product can achieve a 99% flow through. SWBT achieves 99% flow through or 1% fall out for the orders it processes through Consumer EASE. Fall out refers to orders that do not flow through and which require some manual work on the part of the service order representative in order to provision the service. Where a service order flows through, there was no manual work required in the order process.

With respect to ordering unbundled network elements, Ms. Ham acknowledged that Southwestern Bell must provide a requesting CLEC with non-discriminatory access to SWBT's OSS system in order to permit the requesting CLEC to pre-order, order, provision, bill and maintain UNEs in the same manner which SWBT provisions such orders for itself. Ms. Ham agreed that it is much more efficient for Southwestern Bell and the requesting CLEC to process orders electronically as opposed to manually. Southwestern Bell is working towards providing mechanized flow through for the pre-ordering, ordering, provisioning, billing and maintaining of UNEs.

SWBT offers access to the OSS systems for UNE orders using either EDI or LEX. A requesting CLEC can order a loop with port combination through either LEX or EDI. An AT&T service order representative who has access to SWBT's EASE system can activate features of the switch electronically. In that situation, the order for feature activation will flow through electronically and activate the feature at the switch with no manual work required of Southwestern Bell to provision that order.

6. **Randall Vest**

In his rebuttal testimony in PUD 97-213 and 97-442, SWBT witness Randall Vest testified that he is employed by SBC Technology Resources, Inc., the research and development subsidiary of SBC. He is supervisor of a group of computing experts who provide expertise to all of SBC operations. The purpose of his rebuttal testimony was to describe the role and status of the Operational Support Systems (OSS) of SWBT. He specifically responded to the testimony of AT&T's Mr. Segura concerning OSS.

Mr. Segura described a provisioning process flow as he assumes it to exist within the Regional Bell Operating Companies. He erroneously applied these assumptions to SWBT, and further suggested changes to improve efficiencies. His imagined process flow, combined with his suggested "improvements," are integral to his cost analysis.

Mr. Segura's testimony about SWBT's processes is based on false assumptions. After divestiture, each of the regional operating companies proceeded with many different initiatives to provide their operational processes. Even though there are some common legacy systems involved, the systems in each company are quite different. Mr. Segura's assumptions that SWBT follows his presumed RBOC model are simply wrong.

Mr. Vest described the provisioning process as it exists at SWBT. He also explained why orders cannot always be totally automated, even with the development of new automated systems. Errors or "fallout" can occur between systems at each of the many steps involved in a provisioning process. When this occurs, manual processing is required.

Two of the main contributing factors to errors in this environment are changes and complexity of service. When a customer calls to change a due date, to change a feature, to revise billing information or for any number of other reasons, the service order must be updated and reprocessed. This creates more opportunities for error with the original request. Furthermore, the more complex the assignment and the more services on the order, the more opportunities for errors exist. When errors occur, the order cannot be handled on a fully automated basis, contrary to assumptions at the foundation of AT&T's position.

— Summary of Cross-Examination of Randall Vest

Mr. Vest testified about three advanced OSS systems that AT&T did not model in its non-recurring cost studies: SWITCH, FIRST and Mechanized Circuit Provisioning. SWITCH replaced and improved upon COSMOS. FIRST corrects significant service order fall out without manual intervention. Mechanized Circuit Provisioning eliminates manual assignment for services in TIRKS. Accordingly, AT&T's non-recurring model is conservative in light of these advanced OSS systems used by SWBT.

7. Paul L. Cooper

In his direct testimony in PUD 97-213, SWBT witness Paul L. Cooper testified that he is Division Manager of Separations and Settlements for SWBT. In his testimony, Mr. Cooper testified concerning SWBT's actual or booked costs for the provision of telecommunications service in Oklahoma. These costs should be used as a comparison tool in order to evaluate the reasonableness of SWBT's forward-looking, incremental cost studies used in this proceeding to determine UNE prices.

The Commission should adopt SWBT's proposed unbundled network element prices in this proceeding which will, in the aggregate, approximate the recovery of SWBT's actual book costs. The Commission may and should consider (particularly after the recent Eighth Circuit U.S. Court of Appeals decisions) the booked costs in the overall development of prices for interconnection to ensure that incumbent LEC customers do not subsidize the market entry of competitive carriers.

SWBT provides the facilities necessary to deploy local exchange service to any customer who requests it within SWBT's service territory and within time and service standards specified by the Commission. This is often called the "Carrier of Last Resort" obligation. The Telecommunications Act of 1996, as well as the FCC's Interconnection Order, require SWBT to make its existing network available to new competitive telecommunications providers. It is this universally available network that will be unbundled and provided to local service providers (LSPs).

SWBT has devoted substantial resources in reaching and maintaining its goal of universally available facilities and service. In Oklahoma, SWBT already has invested over $968 million in net plant to support a ubiquitous, local exchange network and to support the necessary infrastructure for providing facilities and service to Oklahoma customers.

The SWBT costs Mr. Cooper presented do not represent the forward-looking incremental cost and pricing approach described by the FCC in its Interconnection Order. Instead, the costs presented reflect SWBT's booked operating costs, which are fundamental in providing universally available service at affordable rates in Oklahoma.

The actual book costs as set forth on the supplemental filing of Exhibit 2 of Mr. Cooper's testimony are $26.92 per month for loop, $.006694 per minute for local switching and $.004970 per minute for local transport. By setting prices for network functions which recover these actual costs, the Commission will allow SWBT to recover the costs actually devoted to providing service and to maintain a portion of the revenues required to maintain a universally available network. The actual book costs of facilities providing service should be used in the Commission's evaluation of UNE pricing in this proceeding to ensure that those prices do, in the aggregate, recover SWBT's actual costs.

In his rebuttal testimony in PUD 97-213 and 97-442, Mr. Cooper rebutted the testimony of Robert Flappan concerning universal service issues. Mr. Cooper agreed with Mr. Flappan's observation that affordable SWBT prices for basic local exchange service in Oklahoma have been supported by revenues generated by other SWBT services such as intrastate access and vertical services. However, Mr. Cooper pointed out that, contrary to Mr. Flappan's opinion, SWBT UNE rates do not have any hidden universal service support built into them. SWBT's rates simply recover the forward-looking cost of the UNEs *without* providing additional revenue to support basic universal service. AT&T's proposed rates for SWBT are below cost and consequently would require a subsidy from other SWBT services to support the rate to be charged to AT&T. To provide this subsidy to AT&T, SWBT local exchange rates in Oklahoma would have to be raised by an average of approximately $10 per line per month. The total annual subsidy flowing from SWBT's customers to AT&T would be approximately $130 million.

8. Jane E. Knox

In her direct testimony in PUD 97-213 and 97-442, SWBT witness Jane E. Knox testified that she is Director-Accounting for SWBT. She adopted the direct testimony previously filed in PUD 97-213 by John P. Lube, who was Director of Capital Recovery for SWBT through August, 1997. Mr. Lube was subsequently transferred to another position outside of SWBT and was no longer available to testify. In PUD 97-442, she adopted the complete testimony of Matthew DeRouen, Jr.

In her testimony in both cases, Ms. Knox explained why SWBT's economic depreciation parameters should be used to set prices for interconnection and unbundled network elements. Ms. Knox addressed the depreciation parameters and generic formulas used to calculate depreciation rates and expenses, explained the impact of depreciation expenses on prices, explained depreciation expenses as a legitimate recoverable cost, and explained the relevance of survivor curves to depreciation costs.

Ms. Knox also adopted testimony that described SWBT's use of economic depreciation parameters in its forward looking, long-run incremental cost studies (the "cost studies"). She identified and defined the economic parameters, explained their development, differentiated economic from prescribed asset lives, and compared them against competitors' asset lives. Ms. Knox explained why SWBT's proposed depreciation lives and net salvage values are reasonable, consistent with its financial reporting as required by the SEC and under GAAP, and are consistent with the economic depreciation used by SWBT's competitors.

DEPRECIATION PARAMETERS

Depreciation parameters are the asset lives and net salvage percentages used to calculate depreciation rates. In making this calculation, SWBT used total asset lives, along with net salvage percentages. A total asset life is an average total life of the particular asset in question. Nevertheless, experience teaches that individual items of a particular type of asset do not live (i.e., survive) for exactly the same amount of time into the future. To account for this experience, SWBT applied survivor curves in the process of developing cost study factors for depreciation. Survivor curves are long-recognized and industry standard. They identify the amount of a particular type of plant that is expected to be surviving at any particular age. Applying these curves to the calculation of cost study factors assures that all plant will be fully depreciated over its useful life, even though separate items of the same type of plant may survive to varying ages. A depreciation rate for a particular asset generally is calculated according to the following generic formula:

$$\textit{Depreciation Rate} = \frac{100\% - \textit{Net Salvage }\%}{\textit{Asset Life}}$$

DEPRECIATION EXPENSE

Depreciation expense is one of the costs that must be directly recovered when setting prices. It also has a lowering effect on prices. Because net investment is total investment less accumulated depreciation, it follows that depreciation lowers net investment, thereby lowering both the return dollars and the associated income taxes on those return dollars. Therefore, the lowering of the costs related to return on investment, and the income taxes on that return, are additional components having a lowering effect on the total cost to be recovered in prices. Depreciation expense is calculated using the following formula:

Depreciation Expense = Depreciation Rate x Plant Investment

ECONOMIC LIVES

The economic life of an asset is the amount of time over which the asset has economic value or usefulness. These are the lives that should be used to set SWBT's interconnection and UNE prices. To calculate the economic lives used in SWBT's cost studies, several factors are considered: the trend of past equipment turnover data, insights of its network experts, and industry forecasts of future turnover rates. These lives are considered total lives. Economic depreciation expense calculated in forward looking, long run incremental cost studies must be based on the total life of plant (i.e., plant is presumed to be new, with its full life left to be lived).

The depreciation expense calculated for financial reporting is also economic depreciation. However, it is based on SWBT's *embedded* plant, which has already lived part of its life (i.e., it is already partly depreciated). In that case, SWBT depreciates the not-yet-depreciated amount of its embedded plant over the remaining economic life of that plant for financial reporting.

PRESCRIBED LIVES

Asset lives prescribed for SWBT by regulators should not be used to set SWBT's interconnection and UNE prices. Prescribed lives are not economic. They are unrealistically long. They extend past the economic life of the asset's technology in a competitive environment. The use of these lives in SWBT's cost studies would cause both initial depreciation costs and initial interconnection and UNE prices to be too low. Even if the prescribed lives began to drop rapidly in the future, future cost studies would include significantly higher depreciation costs and would yield artificially higher prices, in order to catch-up the previous understatement of depreciation costs.

Prescribed lives are based heavily on retirement of assets. An asset is retired when it is physically removed, abandoned, sold, destroyed, or otherwise withdrawn from service. However, retirements generally are a very poor indicator of the decline in economic value of assets because retirements tend to be concentrated in a relatively short period of time toward the end of the technology's life span. Retirements are not able to track the gradual loss in value for the major network technologies.

Regulators have been motivated to prescribe depreciation lives for assets that are too long because doing so has kept SWBT's regulated prices lower than they otherwise would have been. This practice has promoted universal service. In a competitive market, the recovery of SWBT's assets may not be possible if it is delayed by the use of unrealistically long depreciation lives. This new marketplace is unlikely to sustain prices that cover not only the legitimate depreciation cost of current technology, but also the significant cost of catching-up the past under-depreciation for dying (or dead) technologies.

BENCHMARKING ECONOMIC LIVES

The most appropriate benchmark for SWBT's proposed economic depreciation lives is its efficient competitors in the local exchange market, such as AT&T. Because GAAP requires it to do so, AT&T uses economic lives for the external financial reporting of the depreciation of its assets. AT&T's external depreciation lives are consistent with those prescribed for it by the FCC in its last depreciation rate represcription. AT&T petitioned the FCC to be able to use financial depreciation for regulated purposes, and the FCC allowed AT&T broad latitude to request those financial lives in its last represcription. The economic lives proposed by SWBT in this proceeding are consistent with those authorized by the FCC for AT&T's assets. Since AT&T will compete with SWBT in the local exchange market, it is logical and appropriate that SWBT's economic lives would not significantly differ from those of AT&T.

Furthermore, the ranges of asset lives used by the cable television (CATV) industry, and adopted by the FCC for that industry, generally are consistent with SWBT's proposed economic lives for similar assets.

NET SALVAGE FOR FORWARD LOOKING INVESTMENT

Net salvage is the gross salvage less the cost to remove or abandon the asset. On the average, cost of removal exceeds gross salvage, resulting in negative net salvage (i.e., which is a cost). Therefore, net salvage is an inevitable and legitimate additional cost of doing business. The Commission and the FCC both have specified the inclusion of net salvage in the depreciation of SWBT's network. Therefore, net salvage should be included in SWBT's prices for interconnection and UNEs since it is a legitimate part of the forward looking long run cost attributable to the plant identified in SWBT's cost studies.

In her rebuttal testimony in PUD 97-213 and 97-442, Ms. Knox testified to discuss and rebut issues raised in the testimony of AT&T's witness, Richard Lee, and in the testimony of Liberty witness, Robert C. Stright.

No one disagreed that economic lives are the proper lives to use for purposes of Section 252 of the Telecommunications Act. The issue really was whether the FCC prescribed lives are true economic lives. Mr. Lee erroneously contended that they are economic lives and that they should be used here. Mr. Stright used different lives for some accounts, agreeing with SWBT in that respect, but reverts to FCC prescribed lives for others.

The FCC prescribed lives used by Mr. Lee and Mr. Stright are not economic lives. The FCC has never issued any order which determined that its prescribed lives are economic lives. On the contrary, the FCC prescribed projection lives will not yield economic depreciation or forward looking capital recovery because the FCC's range of projection lives arose from a traditional regulatory atmosphere which focused on protecting the ratepayer and which did not find economic depreciation appropriate.

Beginning in 1993, the FCC set the ranges for the prescribed lives that Mr. Lee and Mr. Stright present here. At that time, the FCC recognized that an anticipated increase in competition and rapid changes in technology and services would lead to a re-evaluation of its depreciation process and ranges. That review has never occurred. Meanwhile, several changes have happened that render the FCC's prescribed rate-of-return lives inapplicable to the present competitive market. Those changes include: (1) the enactment of the Telecommunications Act of 1996; (2) the FCC's Interconnection Order in Docket No. 96-98 regarding the implementation of local competition and the establishment of forward looking costs; (3) the FCC's elimination of the price cap sharing option for price cap LECs, which now eliminates the purpose for the companion rate-of-return style determination of depreciation cost; and (4) the development of competitive pressures in LEC special access services (dedicated transport between customer premises). All of these changes have significantly altered the circumstances under which the FCC established projection lives beginning in 1993. Those lives cannot now be considered as forward-looking in the present environment, as even the FCC has recognized.

The use of the FCC prescribed projection lives would violate Section 252 of the 1996 Telecommunications Act. That section requires that interconnection and network element charges "shall be based on the cost (determined without reference to a rate of return or other rate based proceeding) of providing the interconnection or network element." The FCC's prescribed lives *are* established with reference to rate-of-return type proceedings and will not yield depreciation costs as required by Section 252.

The increase in depreciation reserve levels for LECs are not evidence of forward looking depreciation practices implemented by the FCC as Mr. Lee suggested. To the contrary, the changes were due to amortization of the huge reserves that existed because of the FCC's *past* practices that caused the underdepreciation of assets.

Ms. Knox also rebutted the suggestion by Mr. Lee that the use of depreciation lives consistent with those used in external financial reporting is unreliable for purposes of this cost docket. Depreciation included in such reporting is governed by Generally Accepted Accounting Principles ("GAAP"). The primary purpose of GAAP is to ensure that a company does not present a misleading picture of its financial condition. Furthermore, the FCC has not disapproved the use of such depreciation, contrary to Mr. Lee's testimony.

Mr. Lee also offered the erroneous view that "economic depreciation is a periodic reduction in the book value of an asset that makes the book value equal to its economic or market value." Depreciation rates are not established to reflect a net book value equal to market value. Should an asset increase or decline in market value, its basis (the original cost recorded) does not change. The original cost is still used to apply the depreciation rate. This is required by the FCC rules as well as by GAAP. The depreciation process is simply not an effort to determine the value of assets.

In the same connection, Mr. Lee's comparison of replacement cost to book values was invalid. The depreciation process is not an evaluation process. The depreciated or net book value is not intended to reflect replacement value.

Mr. Lee's comparison of the book value and the market value of SBC's stock was illogical. Such a comparison does not shed any light on the proper depreciation of assets.

Ms. Knox also took issue with Mr. Stright's position that SWBT has provided no information concerning technological uncertainty. She pointed to specific information provided in this regard and concluded that these competitive influences reinforce technology drivers and magnify the obsolescence of old technology. This will have a shortening effect on asset lives.

Ms. Knox also took issue with Mr. Stright's recommendation that survivor curves should have a rectangular shape. By using a rectangular shaped curve, Mr. Stright assumed that all plant is useful for exactly the same number of years. This was simply not true, even in a forward looking network. It is inappropriate to ignore the reality that all plant is not useful for the same number of years. The survivor curves used by SWBT take this into account. SWBT survivor_curves are more accurate because they acknowledge what has been the company's actual experience: not all plant is useful for the same number of years. Mr. Stright's prepared curves are inaccurate because they ignore this fact.

Summary of Cross-Examination of Jane E. Knox

Ms. Knox testified about depreciation. The FCC prescribes "projection lives" for certain assets in the telephone industry, and Oklahoma has adopted these depreciation lives in other proceedings. A "projection life" is the life of an asset if it was purchased today. For example, the projection life SWBT uses for digital switches is 9.7 years, meaning that if SWBT bought the switch new today, it would have to be replaced in 9.7 years.

An "average remaining life" is the undepreciated life of an asset that is currently in place. In June of 1997, after the Federal Telecommunications Act of 1996, SWBT filed a document with the FCC asking that the FCC approve an average remaining life of its digital switches at 9.0 years.

SWBT's internal Infrastructure Deployment Guidelines, which serve as a reference guide to SWBT's management, show that SWBT's own forecasted end of service life for yet to be purchased digital switches is 10 to 20 years.

SWBT had the opportunity in December of 1997 to petition the FCC for shorter depreciation lives, but chose not to do so.

SWBT says their depreciation lives are "economic lives" and are consistent with GAAP. The FCC has rejected the use of GAAP in determining depreciation lives for telephone companies because GAAP is investor-focused and guided by conservatism.

Ms. Knox agreed that projection lives that take into account retirement patterns, company plans, current technological developments, and industry trends are forward looking. The FCC stated in 1987 and in 1995 that it takes these factors into account when determining projection lives for telephone companies.

Ms. Knox took the position that AT&T violated the FTA by proposing to use the FCC prescribed depreciation lives. The FCC stated in the First Report and Order, Docket 96-98, that the FCC depreciation lives are a reasonable starting point for TELRIC calculations and that the LECs bear the burden of proving with specificity that different depreciation rates should apply.

9. Dale E. Lehman

In his direct testimony in PUD 97-213, SWBT witness Dale E. Lehman testified that he was Senior Economist for SWBT and is currently Associate Professor of Economics at Fort Lewis College in Durango, Colorado. In his testimony, Dr. Lehman demonstrated that according to this Commission's rules, as well as Section 252(d)(1) of the Telecommunications Act of 1996, prices for interconnection and unbundled network elements must be (1) based on cost, (2) determined without reference to rate-based proceedings, (3) non-discriminatory, and (4) just and reasonable. In addition, the prices may include a reasonable profit. He also discussed several general principles that should be applied in this proceeding to comply with these standards. He demonstrated how SWBT's proposed rates meet these standards.

SWBT's proposed rates begin with and are based on a determination of forward-looking incremental costs. These are costs that the SWBT actually expects to incur on a going forward basis, using forward-looking technology. Past under-recovered investment is not included. SWBT cost studies keep speculation to a minimum and rely instead on actual verifiable data to the maximum extent possible. Because these costs represent the cost that the incumbent actually expects to incur, prices based on these costs provide the right signals to potential competitors regarding whether, and in what form, to consider entering the market.

The analysis did not end here. At least two adjustments are necessary if forward looking incremental costs are to be converted into prices. First, SWBT's forward looking joint and common costs need to be recovered. These are costs that cannot be attributed to any single element or service. Common costs are unaffected by the mix of services that the company provides. An example of a common cost is the cost of a railroad that is common to all the types of boxcar freight that it carries.

Joint and common costs cannot be attributable to specific elements or services. In a competitive market, firms do not generally allocate their common costs, but recover them where they can, primarily from those customers most willing to pay them. For this reason, and in order to remain competitive, SWBT believes that although the Commission should verify the level of common costs, SWBT should have the discretion to recover these costs as market conditions permit. For example, if the Commission should allocate common costs to an element that turns out to be least necessary for competitors, they will choose not to purchase it and the costs will not be recovered. SWBT should have the flexibility to recover these costs as market conditions permit.

In this proceeding, SWBT proposed a uniform allocation of common costs to individual unbundled network elements ("UNEs"). At this time, there is little information about the market demand and supply conditions for UNEs. Accordingly, it is impossible to come up with an allocation formula that will mimic actual market conditions. The uniform allocator is therefore proposed here. In the future, as data on market demand and price elasticities for various UNEs are collected, the uniform allocator will probably not be the preferred way to recover common costs.

The second adjustment that should be made to the forward-looking incremental costs to arrive at prices involves embedded costs. Embedded costs are average costs based on the book value of investments and actual expenses allocated to the particular element or service being provided. These are the same as "actual costs."

When forward looking incremental costs are lower than embedded costs, then pricing at forward looking incremental cost, even including joint and common costs, will not provide a reasonable opportunity to recover those embedded costs. Failure to recover prudently incurred embedded costs will profoundly handicap the company's ability to raise capital and continue to invest in network infrastructure. No such adjustment is contained in SWBT's proposed UNE prices.

Finally, as provided in the Act and the Commission rules, the Commission should include a "reasonable profit" in the rates to be set here. This profit should be commensurate with the unprecedented risk associated with the provisions of UNEs. The risks are particularly high in the case of short-term wholesale contracts for unbundled elements in a competitive market. Once SWBT loses customers to competitors providing service over their own facilities, SWBT could not redeploy a substantial portion of the vacated facilities and they would become stranded. The cost would then become a burden for remaining customers of SWBT or shareholders. The cost methodology should recognize the increased risk associated with such conditions through shorter depreciation lives and a higher cost of capital.

In his rebuttal testimony in PUD 97-213 and 97-442, Dr. Lehman showed that AT&T's definition of "forward looking" and the "long run" are at odds with both economic theory and sound regulatory policy. AT&T believes that forward looking, long run costs require the Commission to estimate what SWBT's cost might be as opposed to what they are. If this approach were adopted, the development of facilities-based competition in Oklahoma will be thwarted and SWBT's ability to earn a reasonable profit will be jeopardized.

The Meaning of Forward Looking, Long Run Incremental Cost

The "long run" in economic theory assumes that all inputs are variable. Thus, inputs that cannot be varied in the short run can be varied in the long run, and will be varied if lower cost will result. AT&T misapplies this concept and builds into its definition of long run the *expectation* that existing processes must be replaced. The error of AT&T's position is that it fails to take into consideration the cost of replacement and fails to demonstrate that the new process will be more efficient than the one replaced.

AT&T's erroneous characterization of the "long run" changes its meaning from "all inputs can be varied" to "all inputs *must* be varied" and then to "all inputs must be varied without including the transition cost." This represents an unachievable cost standard.

Short run fixed inputs are to be varied if and only if they will result in lower costs, including the costs of varying the inputs. As a result, a theoretically more efficient process or piece of equipment will be adopted only if the present value of the cost, including the investment cost, is lower than continuing to use an existing process. AT&T overlooks these fundamental principles. In an environment of continual technological progress, it is not efficient to constantly replace existing technology as soon as a more efficient model becomes available.

For example, if you buy a personal computer today, it makes no sense to replace it tomorrow, as soon as a more modern and less expensive alternative is available. If you were forced to price PC services on the basis of the latest technological advance at all points in time, then you would never invest in any specific technology, since it would soon be overpriced. Supposed you purchased a $2,000 PC and a new chip later becomes available one month from today that reduces the PC cost to $1,500. It would make no sense to replace the machine you just bought unless the operational cost savings exceed the $1,500 purchase price of the new machine. Most likely, it will be sufficient to continue to use the $2,000 machine until a later date when the benefits of the new machine offset the purchase cost.

Under AT&T's theories, the business in the example should price PC services based on costs of $1,500, even though actual costs of the equipment were $2,000. This would be done without demonstrating that a move to the new computer would result in greater efficiency and without considering the cost of replacing the machine.

Basing costs on a hypothetical, perfectly efficient network will not make that network happen. In fact, it will impair SWBT's ability to invest in it and undermine the incentive for AT&T and other CLECs to invest in it. The best means to an advanced infrastructure is to let the market build it. This is accomplished by prices that represent what it does cost to provide service, not what it might cost to provide service.

Actual costs should be considered in connection with the estimates presented in this cause. AT&T's estimates differ from SWBT's by something on the order of 100%. If actual or historical costs are ignored, then these appear to be equally plausible cost estimates. However, they are not. AT&T's cost assumptions imply a radical departure from actual experience. AT&T should bear the burden of showing that these costs are in fact achievable, a burden AT&T has not met. The Commission should reject AT&T's practice of engaging in a cost estimation exercise which is incapable of validation. SWBT's cost studies offer the comparison with imbedded cost as a validation check.

Fill Factors

In its cost studies, SWBT used its actual utilization rates for various facilities. Opposing witnesses for AT&T et al. object to these rates, and argued that higher utilization rates or "fill factors" should be used in the cost studies. They asserted that SWBT includes too much spare capacity for an "efficient" network.

AT&T's position is based on speculation of what efficient network deployment is; this speculation is not supported by any evidence. A dynamic network must account for customer migration, the need to place facilities in advance of demand, the requirement to be ready and willing to serve (the "carrier of last resort" obligation), and the relative immobility of network investments which leads to "stranding" of some facilities in some locations. These are realities of SWBT's network, not inefficiencies.

The "spare capacity" of SWBT's network is analogous to the inventory of a retail store. Each piece of inventory is eventually depleted, but the overall level of inventory tends to be relatively constant. By maintaining that inventory, the store is not being inefficient. Inventory costs are part of the proper long run costs of a retail store, just as SWBT's actual fill is a determinant of SWBT's long run network costs.

AT&T et al. viewed a single deployment with no customer migration, so demand "grows" into the installed capacity. This is a static illusion, analogous to assuming that the retail store will experience a gradual elimination of its inventory. Actual network utilization rates significantly below capacity are in fact part of the ongoing efficient cost of a dynamic network, just as the maintenance of inventory by a retail store reflects efficiency, not inefficiency.

Depreciation and Capital Costs

Dr. Lehman took issue with the testimony of Mr. Lee and Dr. Collins to use prescribed lives as economic lives for calculating depreciation. In a competitive environment, depreciation rates must reflect the actual loss of economic value that is associated with today's investments. With continual technological progress, depreciation must mirror the fact that investments today must be competitive with alternatives that are becoming cheaper over time. This calls for significantly shorter depreciation lives than the prescribed lives promoted by the CLECs.

An important feature of UNE transactions is that there is no long-term purchase commitment by the CLECs. On the other hand, provision of UNEs requires long-term investment by SWBT in relatively sunk facilities. These are very risky conditions, with no regulatory backstop to offset such risks. Competitive markets generally require long-term purchase arrangements under these conditions, or require an up-front premium as compensation for this risk. The CLECs offer no long-term (or even short term) purchase commitment and rather than paying a premium, ask for pricing that is below cost. If the CLEC positions are accepted, and UNE prices are established at half of actual SWBT costs as a result of depreciation lives that are far too long, then facilities-based entry will be slow indeed.

Switch Discounts

The vendor switch discounts proposed by AT&T as adjustments to switch costs are erroneous because they are based solely on replacement cost for the switch, not a combination of replacement and growth jobs as used by SWBT. In dynamic terms, a network will have a combination of new switch placements and growth jobs to existing switches. AT&T, in using replacement costs only, relies on the artificial exercise of instantly rebuilding the network to serve current demand. This is a static exercise that does not replicate the cost that a dynamic network must incur to provide service. AT&T also wants to hold SWBT's investments constant while increasing the demand under its proposed cost studies. This is at odds with actual dynamic network conditions.

Common Costs

In this section of his rebuttal, Dr. Lehman detailed a number of errors committed by AT&T in arriving at an allocation of common costs. To emphasize the errors, Dr. Lehman pointed out that AT&T's proposed common costs are roughly half of SWBT's actual common costs, suggesting that SWBT's forward-looking total revenues should be equal to half of its actual costs, under AT&T's inappropriate methodology.

Expense Factors

Dr. Lehman recounted a number of errors made by AT&T and others concerning various adjustments to SWBT's expense factors. The most important error committed by AT&T et al. was to misrepresent SWBT's expense factors as merely restatements of SWBT's booked expenses. Because SWBT used only the booked expense to investment expense relationships and then applied these relationships to forward-looking investments, SWBT's proposed forward-looking expenses are generally considerably below the actual booked expenses.

Non-Recurring Costs

AT&T incorrectly asserted that certain labor costs involved in non-recurring activities duplicate those included under maintenance factors. AT&T was incorrect. The non-recurring activities associated with UNE orders are new activities; by definition they cannot duplicate ongoing maintenance activities. AT&T's asserted double-recovery of these costs can only result if total non-recurring activities remain constant in the future (and with competitive entry) - a speculative assumption unsupported by any evidence.

AT&T also suggested that "start up costs" should be recovered in recurring charges rather than non-recurring charges. The flaw in this argument is obvious when one considers that CLECs have no long-term obligation to continue to purchase UNEs. A successful competitive business would not allow itself to incur significant non-recurring costs while trying to recover them on a recurring basis where no long-term purchase commitment exists.

Recommendations to the Staff

Dr. Lehman took issue with a number of contentions by witnesses for Liberty Consulting. Liberty made some of the same conceptual errors as AT&T. For example:

- High fill factors are based on speculation that fill levels will dramatically increase in the future. This was at odds with SWBT's actual experience.

- Liberty witnesses assumed a static reconstruction of the network and ignore the real dynamic cost of that network.
- Liberty recommended the removal of alleged "double recovery" of support asset costs. There is no evidence that such double recovery could occur; it is speculation to assume that the level of non-recurring activities will not increase in a competitive market.
- Liberty models for non-recurring costs assumed that all OSS will be mechanized. This is more speculation that runs counter to actual experience. Furthermore, for SWBT to recover its costs, all CLECs using OSS, including all small CLECs, would have to be fully mechanized.
- Liberty's building factor was based on the unsupported, speculative assumption that fewer buildings will be required in the future.
- Liberty assumed that SWBT would be able to command vendor switch discounts which are greater than those presently experienced. This was speculative and contrary to the concern that as local competition increases, SWBT's purchasing power may decline.
- Liberty assumed that demand would grow while common costs would not. The effect of this is to lower UNE prices since these prices are equal to a cost divided by quantity of output. If demand growth is to be reflected, the additional investments required to service this demand growth must also be included.
- Liberty confused the common cost allocator with common costs per unit of output, as did AT&T. There was no downward trend in SWBT's common costs as a percent of total attributable cost.
- Liberty's position on inflation incorrectly assumed that SWBT's cost studies do not account for productivity growth and that its levelized inflation factors are incorrect.
- Liberty adopted the FCC prescribed lives for use in depreciation, even though established in a regulatory environment which is not comparable to the competitive environment in which UNEs will be offered. Liberty also failed to take into consideration that shorter than average lives do not exactly offset longer than average lives on a present value basis.
- Liberty contended that non-UNEs should be priced the same as UNEs. This position is fundamentally at odds with the Telecommunications Act of 1996.

Summary of Cross-Examination of Dale Lehman

Dr. Lehman is a professor of Economics. He did not prepare any of the cost studies submitted in this docket and cannot testify that the inputs that SWBT has included in their cost studies have been filed in this docket satisfy the

Oklahoma LRIC costing standards. Similarly, Dr. Lehman could not testify that the inputs proposed by AT&T do not satisfy the Oklahoma LRIC costing standards.

Dr. Lehman did confirm that, in preparing a long run incremental cost study, one should employ forward looking technology. A proper LRIC study should use least cost and most efficient technology.

Dr. Lehman also testified that it is generally accepted that as a monopolist transition to a competitive market quite often that monopolists will achieve efficiency gains.

Dr. Lehman confirmed that if SWBT were going to replace a certain switch with a more efficient switch, in performing a forward looking long run study one should capture the costs associated with the more efficient switch as opposed to the one that is being replaced.

Dr. Lehman acknowledged that it is generally accepted within the economics field that a properly conducted LRIC study sets the price floor for that service and the elements which comprise that service. Conversely, the price of that service represents a LRIC ceiling for that service or combination of elements comprising that service; the LRIC must be below the retail rate level. Private line and Centrex services are prices above the LRIC service price floor. For those services, the LRIC is below the tariff level for private line and for Centrex services. For a private line, the LRIC is something less than the tariffed rate.

Similarly, the LRIC for a Centrex service is less than the tariffed rate for Centrex services. The statewide average that SWBT is proposing is somewhere between $24 and $28 for an 8db loop. Dr. Lehman confirmed that a private line is an 8db loop that is used for a particular application. In providing a Centrex service, SWBT is providing some loop facilities and some switch or transmission facilities from SWBT's central office to the customer's location.

In a private line loop, the local channels used to provide a transmission path to connect customer premise station equipment. The tariffed rates for private line loops range from $10.50 to $11. Therefore, Dr. Lehman conceded that a properly conducted LRIC for a private line loop is something less than $11. The tariffed rates for Centrex services range but are generally less than $11.28. Again, Dr. Lehman conceded that a properly conducted LRIC of providing Centrex service is less than $11.28.

Dr. Lehman confirmed that, in proceeding PLEXAR service, SWBT provides the customer with loop, switch and transmission facilities. Dr. Lehman confirmed that the unrestricted PLEXAR rate ranging from $8.95 to $11.85 depending the length of the contract. Dr. Lehman confirmed that with respect to a PLEXAR service, a properly conducted LRIC for a loop, switch and transport is something less than $11.85.

10. W. Craig Conwell

In his direct testimony in PUD 97-213, SWBT witness W. Craig Conwell testified that he is an outside telecommunications consultant. Mr. Conwell presented testimony to evaluate the methods and models used by SWBT in its cost studies presented in this cause for unbundled network elements. Mr. Conwell prepared a written description of the SWBT studies attached to his testimony as Exhibit B, and it discussed SWBT's costing approach and the important aspects of the key cost studies - the local loop, end office switching, transport and other unbundled network elements.

The cost methods and models used by SWBT provided reasonable, accurate costs for its unbundled network elements. The SWBT unbundled network element cost studies are forward-looking, long run incremental cost studies that follow the Total Element Long Run Incremental Cost (TELRIC) methodology set forth by the FCC.

SWBT's studies are similar to those made by other major telephone companies. They rely on network engineering models, which estimate the forward-looking costs to construct plant and which estimate the resulting costs per unit of capacity for loops, switching, transport and other network elements. The input data in these "industry standard" models reflect existing wire centers, total demand for plant capacity, and a prospective view of the evolution of the network and its costs. Key input data include the mix of technologies and current equipment prices. Capital costs (*i.e.*, depreciation, cost of money, income taxes) are based on another "industry standard," the CAPCOST model, which has been used by the RBOCs and AT&T since the 1970s. Key input data, such as service lives, debt ratios and income taxes, are current values or forward-looking estimates.

SWBT's cost methods and models are sound. They provide reasonable estimates of forward-looking incremental costs of unbundled network element costs. For example, SWBT's main plant investment models, which compute forward-looking investments for loops, switching and transport, are reasonable models of the costs to construct these facilities. SWBT's approach for calculating plant investment is common among telecommunications companies, and SWBT's models reasonably apply this approach.

In his direct testimony in PUD 97-442, Mr. Conwell adopted the testimony of William E. Barfield, Jr. *Mr. Conwell's testimony is almost identical to his testimony filed in Cause No. PUD 97-213 with some minor exceptions.*

In its cost studies, SWBT used a methodology that applies various factors and labor rates to determine accurate estimates of the cost of providing specific products and services. In his testimony, Mr. Conwell addressed why these factors and labor rates are required to develop costs. He also explained how these factors and labor rates are developed and how they are applied in the cost studies SWBT presented here.

Factors and labor rates are the means by which SWBT was able to measure certain costs expected to be incurred in the provision of products and services. These factors and labor rates have been developed from SWBT's current financial records, as verified and audited by internal and external sources. Their use is an expedient and accurate method to prepare cost studies for SWBT's products and services.

The costs SWBT currently incurs in the provision of products and services are the best indication of what its costs will be in the future period of the contract with the Competitive Local Exchange Provider (CLEC). All of the factors are developed from the current costs in SWBT's financial records categorized by FCC Part 32 Accounts. These financial records are the bases for SWBT's reports to the SEC, the financial community, and various regulators. In addition, the factors used in developing costs are the same as those developed for SWBT tariffed products or services.

The factors used by SWBT in its cost studies are as follows:

- Cost factors are applied to identify expenses (maintenance, for example) relating to specific investments. These factors are expressed in terms of the costs SWBT will incur per dollar of investment (by specific account).

- Investment factors are applied to identify the additional investments over the vendor's purchase price required to install and house the equipment needed for the provision of SWBT's products or services. They include installation labor, sales tax and building factors.

- Inflation factors are applied to properly match SWBT's estimated cost with the time period for which those costs will be applicable. An inflation factor trends past experience into the foreseeable future. The costs so identified are projected forward to the end of the CLEC contract period and then levelized back to present values. The costs developed in the SWBT cost studies represent the efficient forward-looking least cost technology based upon current financial information. However, costs will change over time. For example, operating expenses track closely to the overall economy price indices, especially when labor costs are the most significant expense and SWBT's labor contract ties to the CPI-W rate of inflation. Inflation factors recognize these future costs.

These factors are stated in a "per dollar of cost" or a "per dollar of investment" ratio. This ratio is easier to administer for the multiple elements at issue. Moreover, they automatically adjust when inputs change.

Cost factors are stated as a ratio of costs to investments, but cost factors are not simply a ratio of current expenses divided by booked investments. To accurately apply these cost factors in SWBT's forward-looking cost studies, where all plant is assumed to be new, the costs employed must all be current costs. The cost of investment must be the value that would be invested if all assets were to be replaced today for providing service tomorrow. To accomplish this, investment accounts are brought forward to the current replacement cost levels by technology. Forward-looking technology is assumed in each study. Thus, SWBT adjusts the embedded nature of investment cost data. For example, digital switching is assumed rather than the mix of switch technology now in place on the network. Likewise, the appropriate forward-looking use of fiber or copper cable is used, rather than the mix of cable now in place. This restatement to forward-looking investment is accomplished by using the Current Cost to Book Cost (CC/BC) ratio. The CC/BC ratio converts the gross *book* cost of all existing investments to the value that would be invested if all assets in that account were to be replaced today for providing service tomorrow. The cost factors are then calculated by dividing SWBT's current expenses by this restated investment.

An example of this may be helpful. Suppose SWBT has current pole expenses of $25 with gross pole book investments of $50 and a Pole Current Cost to Book Cost (CC/BC) ratio of 2.0. SWBT's current expense to investment ratio would be computed as follows:

$0.50 ($25 pole expenses / $50 booked pole investment)

Because it is based on booked investment, this factor does not reflect a forward-looking maintenance factor, and thus could not be properly used in forward-looking studies. To develop a forward-looking factor for poles, the replacement cost of the pole investment is first calculated:

$100 ($50 booked investment x 2.0 CC/BC)

Then SWBT would develop the forward-looking pole maintenance factor, as follows:

$0.25 ($25 current expenses / $100 investment replacement cost)

This example demonstrates how booked investment is restated to be forward-looking, so that the resulting maintenance cost factor can be used in SWBT's forward-looking cost studies.

Labor rates represent the cost per hour of labor (by specific job classification) required in the provision of products and services. Labor rates are used when certain activities, such as non-recurring cost functions, are better identified by an analysis of the labor effort expended to complete specific tasks instead of the investment required.

In its cost studies, SWBT applied the applicable cost factors, investment factors, inflation factors and labor rates to the required forward-looking investments or the current labor time necessary to provide a product or service in question. All activities associated with products and services are currently performed by SWBT employees. The labor rates can be applied to the estimated times required to perform these new activities in order to estimate the appropriate charges for SWBT's products and services.

In performing these studies, SWBT also used the Capcost model to develop depreciation, return and income tax factors. Capcost is used to calculate the depreciation, return on capital and income taxes required to reimburse SWBT for its investment in the placement of the assets required to provide products, services. Capcost levelizes capital cost factors over the total life of the assets.

In his rebuttal testimony in PUD 97-213 and 97-442, Mr. Conwell testified that as an independent consultant specializing in telecommunications costing was engaged by SWBT to review unbundled network element cost studies and to assist in cost study related matters. Mr. Conwell's testimony addressed claims by AT&T,

Cox and others that the cost factors and labor rates used in SWBT cost studies cause UNE costs and resulting rates to be too high.

There are four types of cost factors:

1) Capital cost factors for computing annual depreciation, cost of money and income taxes attributable to plant investment.

2) Expense factors for estimating annual operating expenses attributable to plant.

3) Investment factors for computing additional plant construction costs, which must be included with the costs of vendor materials, engineering and installation labor to arrive at the total plant investment.

4) Inflation factors for estimating average inflation in plant construction costs and operating expenses for the period 1996 to 1998, or the initial time period expected for UNE rates.

Labor rates are applied to activity times to compute the costs of activities.

In summary, Mr. Conwell's rebuttal demonstrated the following:

Use of prescribed service lives and lower cost of money. SWBT maintains that its service lives and cost of money used in computing capital cost factors are correct; therefore, no changes should be made to the capital cost factors. No changes should be made to support asset expense factors for changes in capital costs.

Inclusion of non-recurring costs in maintenance expense factors. If an adjustment is to be made, the current best percentage estimate of rearrangement and change expenses (excluding right to use fees) for central office and cable and wire facilities should be used to remove non-recurring costs. No adjustment to non-recurring costs should be made.

Testing expenses included in maintenance expense factors. Contrary to AT&T's recommendation to exclude 20% of testing expenses, no testing expenses should be eliminated from maintenance expense factors.

Inclusion of salary-related support asset expenses in plant labor rates and the support asset expense factors. Although it will have a minor effect on UNE costs, the support asset expense factor may be adjusted to exclude salary-related support asset costs in proportion to the ratio of non-recurring costs to total plant specific expenses (excluding RTU fees). No salary-related support asset expenses should be removed from labor rates.

Issues related to SWBT's building factor. Overall, SWBT maintains that its building factor development is sound, although an adjustment may be made to include radio investment in the building factor calculation.

Use of annual cost factor methodology proposed by Cox. SWBT does not accept Cox witness Dr. Collins methodology that hinges on the assumption of